

REGULATION 7.07 Standard of Performance for New Incinerators

Air Pollution Control District of Jefferson County Jefferson County, Kentucky

Relates To: KRS Chapter 77 Air Pollution Control

Pursuant To: KRS Chapter 77 Air Pollution Control

Necessity and Function: KRS 77.180 provides that the Air Pollution Control Board may make and enforce all needful orders, rules, and regulations necessary or proper to accomplish the purposes of KRS Chapter 77. This regulation provides for the control of particulate emissions from new incinerators.

SECTION 1 Applicability

This regulation applies to each incinerator commenced on or after April 19, 1972, which is the affected facility. This regulation shall not apply to any medical waste incinerator, existing or new, as defined in Regulation 6.41 or 7.78. It shall not apply to any new municipal solid waste incinerator as defined in Regulation 7.76.

SECTION 2 Definitions

Terms used in this regulation not defined herein shall have the meaning given them in Regulation 1.02.

- 2.1 "Auxiliary fuel" means a substance burned in an incinerator to supply additional heat to attain temperature sufficiently high to dry and ignite waste material and to maintain ignition of the waste material, but which is never in contact with the waste material.
- 2.2 "Incinerator" means any furnace used in the process of burning waste for the purpose of reducing the volume of the waste by removing combustible matter.

SECTION 3 Standard for Particulate Matter

- 3.1 No owner or operator of any affected facility shall cause, suffer, allow, or permit the emission produced by the incineration of any substance to have greater than 20% opacity.
- 3.2 No owner or operator of an affected facility up to 499 lbs/hr capacity shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.45 g/dscm (0.20 gr/dscf) corrected to 12% carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.
- 3.3 No owner or operator of an affected facility of 500 lb/hr up to and including 45 metric tons per day charging rate (50 tons/day) shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.23 g/dscm (0.1 gr/dscf) corrected to 12% carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.
- 3.4 On and after the date on which the performance test required to be conducted by Regulation 7.01 is completed, no owner or operator of an affected facility of more than 45 metric tons per day charging rate (50 tons/day) shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.18g/dscm (0.08 gr/dscf) corrected to 12% carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

SECTION 4 Monitoring of Operations

The owner or operator of an affected facility of more than 45 metric tons per day charging rate (50 tons per day) shall record the daily charging rates and hours of operation.

SECTION 5 Nameplate

All affected facilities shall have a nameplate installed in a conspicuous place on the unit giving the manufacturer's name, model number, rated capacity, and the types of waste material for which the unit is designed.

SECTION 6 Test Methods and Procedures

- 6.1 The reference methods as defined in Regulation 1.04 shall be used to determine compliance with the standard prescribed in section 3.
- 6.2 The sampling time for each run shall be at least 60 minutes and the minimum sample volume shall be 0.85 dscm (30.0 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the District.
- 6.3 If a wet scrubber is used, the gas analysis sample shall reflect flue gas conditions after the scrubber, allowing for carbon dioxide absorption by sampling the gas on the scrubber inlet and outlet sides according to either the procedure under sections 6.3.1 through 6.3.5 or the procedure under section 7.
 - 6.3.1 The outlet sampling site shall be the same as for the particulate matter measurement.
 - 6.3.2 Randomly select nine sampling points within the cross section at both the inlet and outlet sampling sites. Use the first set of three points for the first run, the second set for the second run, and the third set for the remaining set for the third run.
 - 6.3.3 Simultaneously with each particulate matter run, extract and analyze for carbon dioxide an integrated gas sample traversing the three sample points and sampling at each point for equal increments of time. Conduct the runs at both inlet and outlet sampling sites.
 - 6.3.4 Measure the volumetric flow rate at the inlet during each particulate matter run using the full number of traverse points. For the inlet, make two full velocity traverses approximately one hour apart during each run and average the results. The outlet volumetric flow rate may be determined from the particulate matter run.
 - 6.3.5 Calculate the adjusted carbon dioxide percentage using the equation in Appendix A.

SECTION 7 Alternative Procedures

Alternatively, the following procedures may be substituted for the procedures in sections 6.3.3, 6.3.4, and 6.3.5.

- 7.1 Simultaneously with each particulate matter run, extract and analyze for carbon dioxide, oxygen, and carbon monoxide an integrated gas sample traversing the three sample points and sampling for equal increments of time at each point. Conduct the runs at both the inlet and outlet sampling sites.
- 7.2 After completing the analysis of the gas sample, calculate the percentages of excess air for both the inlet and outlet sampling sites.
- 7.3 Calculate the adjusted carbon dioxide percentage using the equation in Appendix B.
- 7.4 Particulate matter emissions, expressed in g/dscm, shall be corrected to 12% carbon dioxide by using the formula in Appendix C.

SECTION 8 Emission Monitoring

A continuous monitoring system for the measurement of opacity of emissions discharged into the atmosphere from each incinerator with a charging capacity of more than 45 metric tons per day (50 tons/day) shall be installed, calibrated, maintained, and operated by the owner or operator subject to this regulation. This requirement does not apply to incinerators using wet scrubbers.

Adopted v1/7-14-76; effective 9-1-76; amended v2/11-16-83, v3/9-15-93.

Appendix A to Regulation 7.07

Calculation for Adjusted Carbon Dioxide Percentage

$$\%CO_2 A = \%CO_2 D \left(\frac{Q_i}{Q_o} \right)$$

where:

- $\%CO_2A$ = the adjusted carbon dioxide percentage which removes the effect of carbon dioxide absorption and dilution air.
 - $\%CO_2D$ = the percentage of carbon dioxide measured before the scrubber, dry basis.
 - Q_i = the volumetric flow rate before the scrubber average of two runs, dscf/min.
 - Q_o = the volumetric flow rate after the scrubber, dscf/min.
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Appendix B to Regulation 7.07

Calculation for Adjusted Carbon Dioxide Percentage, Alternate Procedure

$$\%CO_2 A = (\%CO_2 D) \frac{(100 + \% EA_i)}{(100 + \% EA_o)}$$

where:

- $\%CO_2A$ = the adjusted outlet carbon dioxide percentage.
- $\%CO_2D$ = the percentage of carbon dioxide measured before the scrubber, dry basis.
- $\%Ea_i$ = the percentage of excess air at the inlet.
- $\%Ea_o$ = the percentage of excess air at the outlet.

Appendix C to Regulation 7.07

Particulate Emissions Correction Calculation Alternate Procedure

$$C_{12} = \frac{12 C_p}{\%CO_2}$$

where:

C_{12} = the concentration of particulate matter corrected to 12% carbon dioxide.

C_p = the concentration of particulate matter.

$\%CO_2$ = the percentage of measured carbon dioxide or, when applicable, the adjusted outlet carbon dioxide percentage as determined by Appendix B.